

Application No. 10/721,133
Response dated Aug. 17, 2005
Notice of Non-Compliant Amendment dated: Aug. 8, 2005

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A fuel injection control device of an internal combustion engine comprising:

an exhaust purification device located at an exhaust passage of an internal combustion engine for purifying an exhaust gas by catalytic action;

exhaust gas temperature determination means for detecting or computing temperature of the exhaust gas passing through the exhaust purification device;

determining means for determining an amount and a timing of basic fuel injection based on operational status such as a load and a rotational speed of the internal combustion engine; and

control means for controlling an amount and a timing of a fuel injection by a fuel injector of the internal combustion engine, wherein the control means controls the amount and the timing of the fuel injection to make them respectively equal to the amount of the basic fuel injection and the timing of the basic fuel injection timing when the detected or computed exhaust gas temperature is at or above a catalytic activation temperature of the exhaust purification device, and the control means raises the exhaust gas temperature by retarding the timing of the fuel injection timing from the timing of the basic fuel injection, and also increases the amount of the fuel injection from the amount of the basic fuel injection in order to compensate for a drop in a torque output of the internal combustion engine which is caused by retarding the timing of the fuel injection when the detected or computed exhaust gas temperature is lower than the catalytic activation temperature of the exhaust purification device so that the torque output obtained is substantially equal to the torque output of the normal fuel injection timing and the values of the increased amounts of the fuel injections are stored into the control means in the form of maps.

2. (Original) A fuel injection control device according to claim 1, wherein the control means determines retardation period from the timing of the basic fuel injection based on the load and the rotational speed of the internal combustion engine and determines the increased amount of the fuel injection based on the

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load and the rotational speed of the internal combustion engine.

3. (Original) A fuel injection control device according to claim 2, wherein a relationship between the retardation period and the load and the rotational speed of the internal combustion engine and the relationship between fuel injection and the load and the rotational speed of the internal combustion engine are stored into the control means in the form of maps, and the control means controls the timing of the fuel injection and the increased amount of fuel injection according to the maps.

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Response dated Aug. 2, 2005
Reply to Office Action mailed May 2, 2005

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A fuel injection control device of an internal combustion engine comprising:

an exhaust purification device located at an exhaust passage of an internal combustion engine for purifying an exhaust gas by catalytic action;

exhaust gas temperature determination means for detecting or computing temperature of the exhaust gas passing through the exhaust purification device;

determining means for determining an amount and a timing of basic fuel injection based on operational status such as a load and a rotational speed of the internal combustion engine; and

control means for controlling an amount and a timing of a fuel injection by a fuel injector of the internal combustion engine, wherein the control means controls the amount and the timing of the fuel injection to make them respectively equal to the amount of the basic fuel injection and the timing of the basic fuel injection timing when the detected or computed exhaust gas temperature is at or above a catalytic activation temperature of the exhaust purification device, and the control means raises the exhaust gas temperature by retarding the timing of the fuel injection timing from the timing of the basic fuel injection, and also increases the amount of the fuel injection from the amount of the basic fuel injection in order to compensate for a drop in a torque output of the internal combustion engine which is caused by retarding the timing of the fuel injection when the detected or computed exhaust gas temperature is lower than the catalytic activation temperature of the exhaust purification device so that the torque output obtained is substantially equal to the torque output of the normal fuel injection timing and the values of the increased amounts of the fuel injections are stored into the control means in the form of maps.

2. A fuel injection control device according to claim 1, wherein the control means determines retardation period from the timing of the basic fuel injection based on the load and the rotational speed of the internal combustion engine and determines the increased amount of the fuel injection based on the load and the rotational speed of the internal combustion engine.

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3. A fuel injection control device according to claim 2, wherein a relationship between the retardation period and the load and the rotational speed of the internal combustion engine and the relationship between fuel injection and the load and the rotational speed of the internal combustion engine are stored into the control means in the form of maps, and the control means controls the timing of the fuel injection and the increased amount of fuel injection according to the maps.